

## CLAIMS

What is claimed is:

- 5           1.     A method of making an implantable electrode array comprising:
  - (a)   forming electrode contact pieces made from a precious,  
biocompatible material into a desired shape;
  - (b)   attaching the electrode contact pieces to a foil sheet made from a  
non-toxic but chemically-active metal;
  - 10   (c)   connecting a wiring system to the metal contact pieces;
  - (d)   molding a flexible polymer carrier around the electrode contact  
pieces and wiring system while such are held in place by the foil sheet; and
  - (e)   etching away the foil sheet, leaving the electrode contact pieces  
exposed at a surface of the molded polymer carrier.
- 15           2.     The method of Claim 1 wherein step (a) comprises forming the  
electrode contact pieces into an oval shape.
3.     The method of Claim 1 wherein step (a) comprises forming the  
20   electrode contact pieces into a star shape.
4.     The method of Claim 1 further comprising coating the electrode  
contact pieces exposed at a surface of the molded polymer carrier with a  
material that controls the surface impedance of the electrode contact piece as a  
25   function of location on the contact surface.

5. The method of Claim 4 comprising coating each electrode contact piece so that the surface impedance of the contact piece increases as a function of distance from the center of the electrode contact piece.

5 6. The method of Claim 1 further comprising masking an electrode contact piece exposed at a surface of the molded polymer carrier with an insulative mask that prevents conduction at various locations at the surface of the electrode contact piece.

10 7. The method of Claim 1 further comprising coating at least one of the flexible polymer carrier or electrode contact piece with a drug compound selected to diffuse into tissue around the electrode array for the purpose of any one of the following: inhibiting fibrous tissue growth, inhibiting bone growth, promoting healing, preventing neural degeneration, and promoting neural  
15 regeneration.

8. The method of Claim 7 wherein the step of coating with a drug compound comprises coating at least one of the flexible carrier or electrode contact piece with a steroid.

20 9. The method of Claim 7 wherein the step of coating with a drug compound comprises coating at least one of the flexible carrier or electrode contact piece with a neuro-trophin.

25 10. The method of Claim 7 wherein step (c) comprises molding the flexible polymer carrier so that the resulting electrode array assumes a naturally curved shape.